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ESSAY

ON

SALIVARY CALCULUS;

ITS

NATURE, CAUSES, EFFECTS, REMOVAL, AND PREVENTION.



BY EDWARD MAYNARD, M. D., D. D. S.

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P R E F A C E.

IN performing the service of writing this Essay (assigned him by the American Society of Dental Surgeons), the author has endeavored to bring within the limits prescribed a few facts respecting the treatment of the Teeth, which it is important that every person should have indelibly impressed upon his mind.

In order that their opinions may be more generally known by the public, the essayist has thought proper to draw largely upon esteemed writers on Dental Surgery.

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ESSAY
ON
SALIVARY CALCULUS.

NATURE.

“SALIVARY calculus, commonly called tartar, is composed of phosphate of lime, with about one fourth as much of fibrina, and about one eleventh of animal fat.”—(PEPYS.)

“It is usually, at first, deposited around the necks of the teeth in the form of dark yellowish paste, mixed more or less with mucus, and soon concretes and hardens into a substance like hardened mortar.”—(FITCH.) “The color, consistence, and quantity of salivary calculus varies in different temperaments, and upon each of these the state of the general health exercises a considerable influence.”—(HARRIS.)

CAUSES.

“That it is a salivary deposite, is proved by every circumstance connected with the manner of its formation.”—(HARRIS.) “There are different idiosyn-

crasies in respect to the disposition of tartar ; the teeth of some persons will have little of it deposited in many years, while some persons have as much in a few months."—(FITCH.)

"This is attributable either to the different degrees of attention which different individuals pay to the cleanliness of their teeth, or to the salivary secretions of some persons being more strongly impregnated with the elementary principles of calculus."—(HARRIS.)

EFFECTS.

"I consider the inflammation of the gums, the decay and loosening of the teeth, as entirely the result of neglect, by allowing foreign matter, fluid or solid, to become filthy, corrosive, and destructive in quality, and then remaining in contact with and producing a chemical decomposition of the enamel."—(L. S. PARMLY.)

"Nothing is more destructive to the health of the teeth and gums than this concretion. Where any considerable quantity of tartar is suffered to collect, the gums become swollen, and are kept in an inflammatory state, producing absorption of the alveolus, and consequently the premature expulsion of the teeth from the jaws. * * * In fine, no mouth can be healthy when the teeth are covered with tartar ; and where the deposit is very large, the health of the body generally is often more or less affected."—(SNELL.) "The effects that result from the presence of this substance upon the teeth are always pernicious, though sometimes more so than at others. An altered condition of the fluids of the mouth, dis-

eased gums, and not unfrequently the gradual destruction of the alveolar processes, and the loosening and loss of the teeth, are among the consequences that arise from it. But besides these, other effects are sometimes produced by it, among which the following may be enumerated: tumors, and spongy excrescences of various kinds, of the gums; necrosis and exfoliation of the alveolar processes and portions of the maxillary bones, hemorrhages of the gums, anorexia and derangement of the whole digestive apparatus; foul breath, catarrh, cough, diarrhoea, diseases of various kinds in the maxillary antra and nose, pain in the ear, headache, melancholy, hypochondriasis, &c."—(HARRIS.) "It is quite doubtful whether it is a directly exciting cause of caries, but indirectly, by causing disease in the soft parts upon which it impinges, and thereby vitiating the secretions of the mouth, it no doubt causes the destruction of a vast number of teeth."—(FITCH.)

The author last quoted, in his excellent "System of Dental Surgery," gives an account of a most distressing and dangerous malady, often terminating fatally, which had prevailed to an alarming extent in the Children's Asylum in Philadelphia. A full account from the attending physician may be found in the "North American Medical and Surgical Journal" for July, 1826. Dr. Fitch has clearly demonstrated that the direct cause of the disease was accumulated acrimonious and foreign matter about the necks of the teeth.

"This morbid state of the mouth" [the consequence of neglect], "which would be most distressing were it to seize upon the patient suddenly, is,

from its supposed insignificant origin and slow progress, sometimes supported by habit, and even left altogether unobserved ; and often, while the individual considers himself in a state of tolerable general and local health, he is under the influence of many disgusting diseases, which are not only destroying the teeth, but impairing the constitution ; and which, in combination with any other unexpected general disease, are likely to become the means of a premature death.”—(KOECKER.)

“If parents would but reflect upon the consequences of neglect and maltreatment, and would avail themselves of the means of preventing them, and of obtaining information upon this subject, so interwoven with the best interests of society, how much good would be dispensed, and how much enhanced the beauty and happiness of mankind !”—(L. S. PARMLY.)

If, from the presence of calculus, the gums are (as they are most apt to be) very sensitive, the teeth of the upper and lower jaws, unless they project more than ordinarily from the gums, will not be made to meet each other through the food as often as they ought ; because, in meeting, the food would be pushed against, and give pain in the gums : hence more time will be required to form an imperfect bolus for swallowing than, if they met, would be required to form a perfect one ; and hence (and this is of vital importance) the food, if fibrous, will pass to the stomach unprepared for the action of that organ.

Fetid breath is usually attributed to foul stomach, as if one breathed with that organ instead of the

lungs. But neither the stomach nor the lungs deserve such reproach ; as the simple act of closing the mouth and breathing through the nose will demonstrate.

A serious evil resulting from a neglected mouth is an impaired or vitiated sense of taste, for which simple, healthy food has little or no relish. The consequences of which are—

1st. The use of stimulating drinks, as well to quench thirst and “take the bad taste out of the mouth,” as to create a fictitious appetite. And 2ndly. The use of food which, in order to be agreeable to the palate, must be, to say the *least* of it, unfit for the nourishment of the body.

We should scarcely think it safe to swallow, even in very moderate doses, a substance so corrosive as to be capable of *turning silver black in one minute* ; yet thousands have such a substance constantly oozing from their diseased gums and teeth, and are hourly mixing it with their meat and drink. Ought such persons to expect health, happiness, longevity ? Will change of climate, or of food, or of exercise, or of society, or trips to watering places, or to sea, or to Europe—will any, or all of these, or will any thing else, except the proper surgical treatment, remove these fountains of poison from the mouth ?

REMOVAL.

If calculus has become incrustated upon the teeth, it can be properly removed only by the dentist. Neither the brush alone, nor with any safe dentifrice, will be effectual : indeed, in many cases the

brush will but increase the inflammation of the gums. Acids, and some dentifrices containing them, will decompose and remove the calculus; but they at the same time do great and permanent damage to the teeth, and should therefore be avoided. Of the many quack remedies advertised as effectual removers of salivary calculus, it may be said that few are safe, except such as are utterly worthless. The dentist who deserves the confidence of his patients will be able to prescribe a proper dentifrice, when any is needed.

PREVENTION.

The fact that the same means are required to prevent both the accumulation of calculus upon the teeth, and their decay, may give additional weight to the remarks under this head.

“After more than thirty years’ experience in dental surgery, and minute observation, I am confident that the gums and teeth of every individual may, by proper and daily friction, continue in perfect health, independent of all the other organs of the human structure, and fulfil the benevolent design of Nature in masticating the food to the most extreme old age.”—(L. S. PARMLY.)

The brush, if a proper one, and used thoroughly in every possible direction upon the different accessible sides of the teeth, will clean all except deep pits or fissures, and such parts as are nearly or quite in contact with the other teeth. But the brush, as generally used, cleans the teeth only where, for their safety, they stand the least in need of cleaning—

that is, upon their most prominent parts—those in which caries seldom or never commences, unless from some improper treatment or defect in the formation of the teeth. Indeed, the brush, *even with the most skilful management, cannot be made to reach the parts* where friction is most required—parts at which at least two thirds of the cases of caries have their origin—namely, the sides that are in contact with the other teeth. These sides can be most perfectly cleaned with a piece of waxed floss silk, which should be passed up and down between the teeth every day, several times in each interstice—bearing the thread first against one side and then the other of each space. This can be done with the utmost facility, strange as it seems to the unpractised in its use, however irregular or crowded the teeth may be.

A majority of those who use the brush give it only a horizontal motion across the teeth; the consequence of which is, that their labor is spent upon the most prominent parts of the teeth, which are sometimes, particularly upon the front teeth, worn away very considerably. Now these prominences could have been *cleaned* with less friction, evidently; but no amount of friction upon these would have cleaned the *other* sides. The friction must be applied *where it is needed*, to have the result satisfactory. Washing one side of the face does not clean the other.

This fact of the teeth wearing away is urged against the use of the brush; but it is doubted whether teeth that would be sensibly diminished in size by fifty years of *proper* treatment, would withstand ten years of neglect.

The teeth of some persons, especially the front ones, have naturally some space between them; little attention will suffice to keep such teeth in order, as they will be partially cleaned by the act of eating.

We sometimes hear persons remark that it is of no use to clean their teeth—they get dirty again directly. Such persons would not say so of their hands and faces, or even of their knives, forks, and spoons; and yet they might, with, if possible, less impropriety.

To justify themselves, some who do not use the brush, say that negroes, who never use it, have less trouble than white people with their teeth. In answer to which, it may be said, that the *negro proper*, having from half an inch to two inches more lineal space in each jaw than the white man for the same number of teeth, is exempt from their irregularities, has much larger teeth, and as each portion of each tooth is larger, their enamel will be thicker, and, of course, withstand longer the effects of deleterious substances lodged about them. But the negroes of Africa, who rub their teeth with sticks, are far more cleanly in their mouths than a majority of white men who use only the brush. A stick of any wood of tough fibre, and half as thick as the little finger, may be chewed or beaten at one end so as to make a very serviceable brush—far better, indeed, than some of the very large and expensive ones of the shops.

The opinion prevails with many, that *snuff* is a preservative of the teeth: and they are led in consequence to familiarize themselves with the disgusting practice of using it as a dentifrice. Snuff pos-

sesses no other than a mechanical property that benefits the teeth ; and this property *any other finely ground* vegetable would have in equal degree. Common saw-dust (sifted) would be quite as beneficial, and certainly less unpleasant.

■ *Pulverized charcoal* will clean and polish such parts of the teeth as it can reach, very perfectly ; but it is too harsh for the gums, which are apt to be cut away by it at their margins. Another and a very serious effect of using this powder, is, that particles of it will get *into* the gums, and give them a blue and unhealthy appearance, which, unless the charcoal be *cut out*, will (for it is there indestructible) remain during life. The most harmless and probably the best preparation of charcoal for a dentifrice, is common gunpowder. The nitre and sulphur which are present in this form will do no harm.

Ashes will clean the teeth, but if a sufficient quantity be used to do so effectually, an alkali will be formed in the mouth, which will inflame the gums, lips, &c.

Soot is free from the objections to charcoal and ashes, but is more bitter, less cleanly, and no better than saw-dust.

■ *Mild soaps* are beneficial, as they neutralize the septic acid generated by the decomposition of food about the teeth.

Tooth-picks, made of quill, ivory, wood, or horn, do very well for removing the large portions of food that adhere to the teeth ; but they do not, and, on account of their thickness, cannot reach those parts of the teeth that most need cleaning, unless the teeth be quite loose in their sockets.

Rubbing the teeth with a *towel*, handkerchief, &c., besides being a dirty practice, forces much of whatever soft matter may be upon teeth into the interstices between them—the very places, of all others, it should be kept out of.

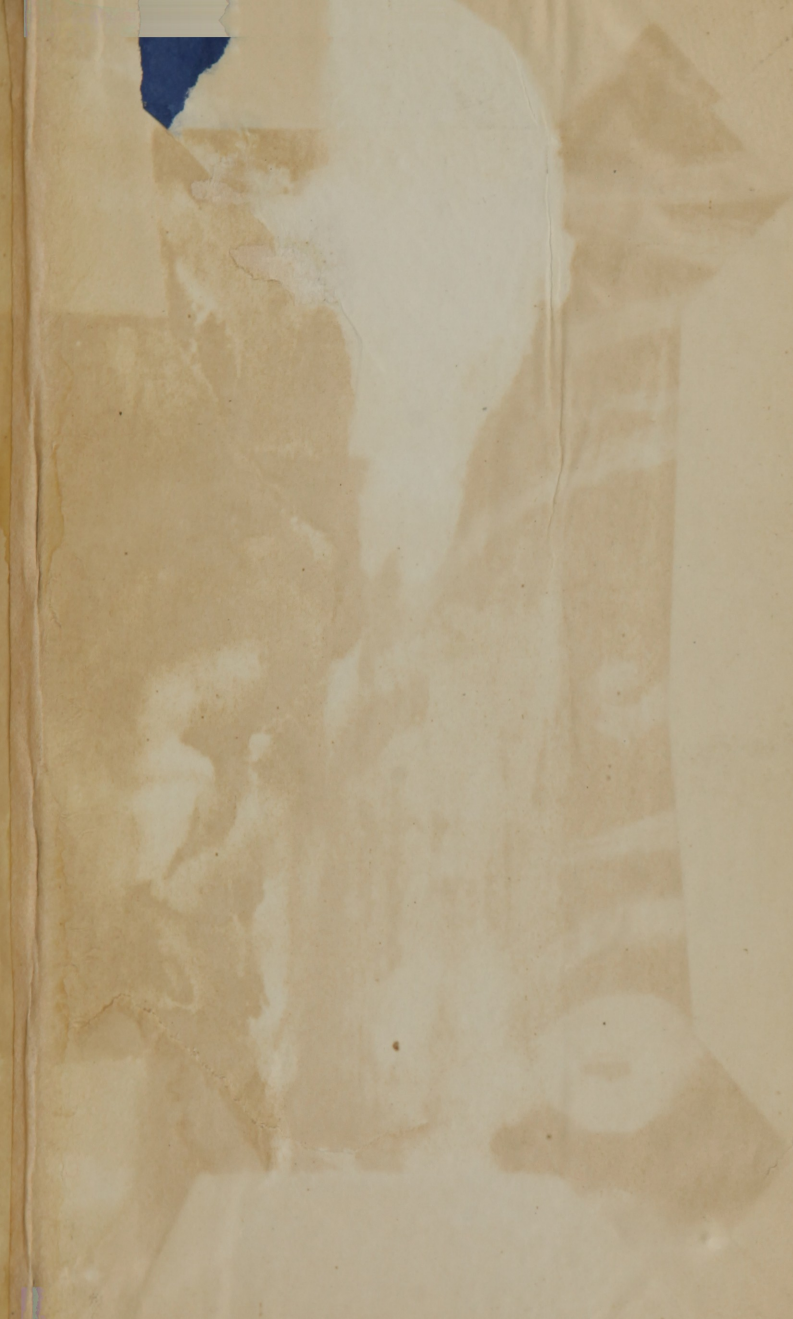
It is believed that any other part of the body would, if as much neglected, suffer as much from disease as the mouth—which should be considered as part of the surface of the body, and as properly entitled to cleansing manipulations as any other part.

A very high authority in *other*, but a ridiculously low one in *dental* medicine and surgery, is often cited as evidence that calculus *preserves* the teeth. Their preservation may be ensured more perfectly, and with far less suffering, by extracting them at once, and laying them away in some *clean* place!

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